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CMLRD-BW-10-PD

Dr. Charles R Phillips
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Dear Charlie-

I was very happy to receive your letter of the 11th. Certainly one of the main purposes of that paper on exobiology, and the only one of including any details on a projected experiment, was to elicit the kind of information you were able to send me with the ms. on the Partichrome. As you say this does come very close to what we were hoping to put together for a planetary experiment. The circuitry you have in mind would be especially applicable to the problem of self-registration, i.e. to signal the transmitter to turn power on only when an interesting object is in the field. Do you have anything written in any further detail on the device mentioned in your letter, for collection of particles on tape?

Pending the completion of NASA's organization for exobiology, the Rockefeller Foundation has given us a small grant to get started on a prototype microscope, and we are trying to collect the best of the art at the present time, with the help of the Dept. of Electric Engineering here. I am also trying to develop a budget for submission to NASA to take us to the next stages of extensive trial and, presumably, modification. Any help you can give us would be deeply appreciated. Is there any possibility of our securing a working model of the devices you mentioned, either on loan-- or if by purchase, what sort of costs would be involved?

You know how pleased and I relieved we have been that you and NASA were able to work out a constructive tactical program, I know what you mean about the educational problem, but I have to believe the worst of it is over. The Russians may have proved to be the best teachers in this case! It certainly is all to the good to have your program brought to public attention now, since there has actually been no open statement so far from NASA. I'm sorry I won't be at the SAB myself.

Unless Hal Halvorsen is going ahead with it, I don't think there is much activity on high vacua. Probably most of the work could be done in the laboratory. Urey thinks it preposterous that there could be much difference in effect between an ultra-high vacuum and the submicron pressures that can easily be obtained: once the mean free path is appreciably larger than the dimensions of your object it should be immaterial. But I think at least the laboratory experiments should be done, perhaps the more so in the light of Zamenhof's recent rediscovery of the high heat resistance of very dry E. coli. I also enclose another gem that might be worth checking on, for thermal protection of bacteria adsorbed on charcoal.

Oswartz - of stink origin

I am waiting for the final version of my paper at Nice to be duplicated, and will send you a copy of this when ready.

On page 6 of the ms. is a reference by Baxter et al. to a paper on automatic focussing -- could you help me to get a reprint of this? And possible realization of the design in a purchasable device?

There will probably be some controversy over the substantiality of the back-contamination problem. The more thought I give to this myself, the more formidable it does seem to me. Assuming that exobiota had the same overall vulnerability to disinfectants as geobiota; what sort of risk figure would you be willing to project for the possible transmission of a single viable particle through any barriers you might devise. If you answer 'zero' for a manned return-flight, I will assume my question is not clearly stated.

If your educational travels bring you to these parts, please drop by; and if you have any more tidbits up your sleeve as interesting and useful as that ms. don't hold back. Much appreciated.

Yours,

Joshua Lederberg

P.S. What about long path-length spectroscopy, UV or IR, for BW alarm. A polarized beam should give you some discrimination for scattered quanta. This would amount to looking for optical rotatory dispersion -- Carl H Djerassi, soon coming to Stanford Chemistry, knows a good deal about this area of instrumentation, and recently wrote a book (Wiley, I think).